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Emerging Markets Queries in Finance and Business

# An analysis of the existence of a link between budgets and performance in economic entities

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## Abstract

Performance is an important objective for economic entities. Considering this, any instrument that supports the increase of performance should be analyzed. Budgets are tools that may have the ability to contribute to performance improvement in economic entities. This paper's goal is to confirm the existence of a link between budgets and performance by analyzing the Romanian entities' perspective through a questionnaire and by developing a simple econometric model. The results obtained aim to demonstrate that the use of budgets induces the increase of performance in Romanian economic entities. This seems to be true at least from the Romanian entities' perspective, although no significant direct link was found between performance and budgets.

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## 1. Introduction

Performance, in the current economic environment, is a must for any economic entity. One of the major advantages of using budgets within economic entities is their ability to help increase the entity's performance. The purpose of this paper is to confirm the link between budgets and performance. We try to answer the

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question: do budgets help Romanian entities to improve their performance? To this objective, we first analyzed the perception of economic entities on this topic by using a questionnaire. Based on the responses obtained, we developed an econometric model designed to analyze the direct link between performance and the budgeting process. The results obtained confirm the fact that from the Romanian economic entities' perspective budgets are useful instruments that support the improvement of performance by their ability to forecast the activity, to manage resources and to implement an effective control. Although this is the case, the econometric model developed does not confirm the existence of a significant direct link between budgets and performance. This shows that the model must be improved by taking into consideration other variables like budgetary participation, budgetary games, etc., or the existence of an indirect link.

The next section of the paper presents theoretical aspects regarding the link between budgets and performance, followed by the perspective of the Romanian entities regarding this topic in section two and by the analysis of the econometric model in section three. The last section of the paper presents the conclusions.

## **2. Budgets and performance of economic entities**

The objective of any economic entity is to achieve or improve performance. Performance represents a certain level of the best results obtained and involves achieving entity's goals (Verboncu, 2005). It can be considered a quantification and evaluation of all efforts made by the entity to achieve its objectives (Yıldız and Karakaş, 2012). Among other, performance implies achieving organizational objectives (Tabără et al., 2007) and performing the activity in terms of competitiveness, competitive advantage, efficiency, effectiveness (Verboncu, 2005), quality and progress (Folan et al., 2007).

There are many ways to quantify performance based on indicators such as turnover, market share (Tabără et al., 2007), rates of return, exchange course, comprehensive income (Tabără et al., 2008), earnings per share, investments or equity (Feleagă & Feleagă, 2005) and liquidity (Brookson, 2002), or qualitative indicators, like the level of customer satisfaction, product quality, welfare and employee satisfaction, innovation rate, employees training degree, etc. (Păunescu, 2006). Also, the concern of economic entities for improving performance is easily seen if we consider the multitude of existing instruments that have as main goal to support the increase of performance. Among these we may include performance management (Bălașa, 2010), dashboard, financial profitability analysis, sales analysis, creation of customer support centers (Popescu, 2006), participatory management (Păunescu, 2006), quality control (see Tabără et al., 2007), etc.

Based on this elements and starting from the fact that budgets support the economic entities in achieving their stated objectives, and the fact that budgets can be seen as a way to quantify and measure performance (by comparing the actual result with the budgeted values) and as tools that support performance improvement, we can state that budgets influence the performance of economic entities.

Economic entities prepare their budgets in order to effectively manage their business and resources through a detailed planning of their activity. Budgets help economic entities in achieving their objective, coordinate the activity, empower and motivate managers and employees, offering the possibility to control the activity in an effective manner, to make optimal decisions, to identify the deviation of actual figures from the budgeted ones and to adopt and implement corrective measures. Besides these, budgets support performance improvement. The substantiation of decisions and the improvement of performance can also be achieved through budget planning and analysis of budgeted and actual values (see Popescu, 2006).

We believe that budgets based on all the advantages offered to managers in conducting the activity, help improve the performance of the organization. There are many ways in which budgets can influence the entities' performance. First of all, budget estimates the income and expenditure expected to be realized. In other words, it predicts the entity's performance. Also, in carrying out the activity, management and staff will monitor the implementation and achievement of budgeted values. Thus, the detailed planning allows everyone to know what to do in order to achieve the stated objectives. This way, the decision making process is facilitated, and

the decision implemented by the management will have the purpose to achieve expected performance. The budgeted values represent the entity's performance objectives. So we can talk about performance if the entity achieves its budgeted objectives (Gruman & Saks, 2011). Budgets can also be a way to quantify performance (Verbeeten & Boons, 2009). Among the financial performance indicators, we can include the achievement of the budgeted values (Lau & Sardesai, 2012; Lau, 2011). In other words, being a management tool, budgets contribute to the management of performance (see Albu & Albu, 2005) being a reference in performing the activity and for performance evaluation (see Albu & Albu, 2003; Hansen & Van der Stede 2004). The coordination of activities and accountability of management and employees achieved through budgets allows them to perform their work in terms of efficiency. Those responsible for budget execution will work hard in order to achieve the desired performance. This will increase the individual performance of employees and therefore the performance of the entity. Also, the efficient management of resources achieved through budgets reduces the risk of losses and thus the risk of expenses that do not generate revenue. The ability of budgets to control activity, to allow the identification of negative deviations by comparing the budgeted and actual values and to allow the adoption of corrective action, supports growth and improves the entity's performance. Therefore, budgets support the economy, efficiency, effectiveness, which are attributes of performance.

Most international studies discuss the link between participatory budgets and performance. They say that budgets developed by using a participatory system may improve performance through organizational commitment (see Parker and Kyj, 2006; Chong et al., 2006; Nouri and Parker, 1998), job satisfaction (Chong et al., 2006), role ambiguity (see Parker and Kyj, 2006; Chong et al., 2006), the exchange of information (Parker and Kyj, 2006) and budget emphasis in performance evaluation (Lau and Tan, 1998) etc. Thus, theoretically, an effective planning of activity through budget carried out by economic entities, will determine an increase in performance. But, from theory to practice there is a long way. This research aims to see whether this hypothesis regarding the link between budgets and performance is supported in practice.

### **3. The link between budgets and performance from the economic entities' perspective- Questionnaire results**

In order to verify in a practical manner the existence of a link between budgets and performance in economic entities, we conceived and distributed a questionnaire to the Romanian entities. It comprises a series of questions about the budgeting process. For this research, we will refer only to four of the questions included in the questionnaire, which offers information about budgets and performance and help us in achieving our goals.

The questionnaires were distributed via email to a number of 505 entities listed on the Bucharest Stock Exchange ([www.bvb.ro](http://www.bvb.ro)). The study was conducted between December 2012 and February 2013 and registered, by the time of this study, a response rate of 2.18%. We assume that the low rate of responses is due to the reluctance of the entities to provide confidential information about an internal process, such as budgeting. Note that the questions included in the questionnaire didn't aim sensitive information, being more theoretical, with a purely scientific purpose. Confidentiality of responses and research purposes were mentioned in the letter that accompanied the questionnaire.

Note: We used multiple-choice questions, allowing respondents to choose one or more variants. Therefore the total percentage may exceed 100%. Percentages shown relate to how many respondents agree with that variant.

Responses came from entities operating in different fields of activity. Those who completed the survey are mostly economic managers, marketing managers, CEOs, chief accountants or financial controllers. 72.73% of respondents are actively involved in budgeting activity and 18.18% know the budgeting process, but do not work with this tool. 100% of the responding entities use budgets on a regular basis.

For starters, we wanted to find out if the Romanian economic entities consider that budgets contribute to the improvement of performance and if so, how. 54.55% of the entities surveyed believe that budgeting activity

leads to improved performance and 54.55% of them believe that an increase of performance will take place only if the budgeting process is correct. Only 9.09% of respondents do not consider budgets as tools to improve results and performance. The results are presented in Fig. 1.

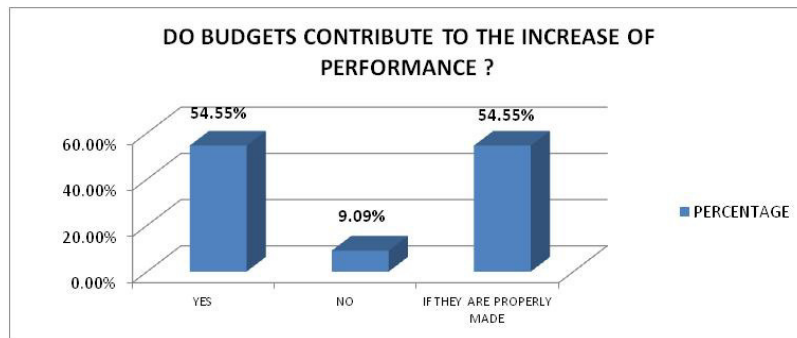


Fig. 1. The importance of budgets in increasing the entity's performance

Regarding the way that budget contributes to the increase of performance, 90.91% of respondents attributed this role to the ability of budgets to effectively manage resources and 72.73% of the respondents consider that the effective control of the business, achieved through budgets, leads to the improvement of performance. 45.45% of the entities believes that forecasting business activity through budgets contribute to superior performance, while 9.09% considered important in this regard, budgets' ability to identify deviations of actual values from the budgeted ones and therefore allowing managers to take corrective action in a timely manner. Only 9.09% of responding entities believe that budgets have no impact on the performance of the entity. The results are presented in Fig. 2.

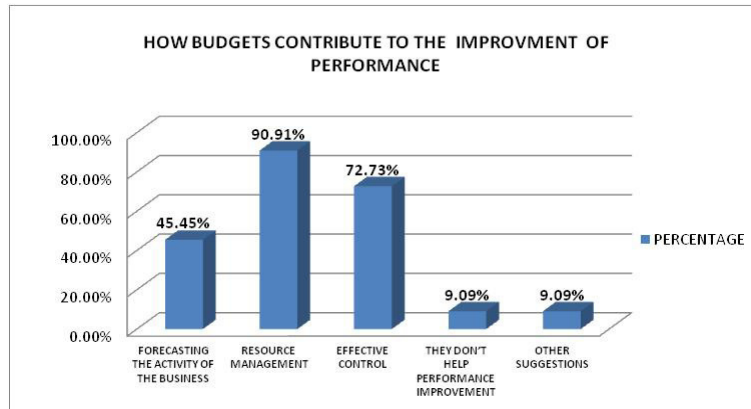


Fig. 2. The way budgets contribute to the improvement of the entity's performance

#### 4. The link between budgets and performance form the economic entities' perspective - An econometric model

To further analyze and understand the link between budgets and performance in economic entities we tried to create an econometric model that can show the relationship between the two variables: performance and budgets. We want to determine if there is a direct link between budgets and performance and if so, how strong

it is. The results obtained by analyzing this simple basic connection will be the basis for our future research aimed to improve the econometric model. We started our research by studying econometrics and learning how to develop our econometric model and how to interpret the results (see in this regard Spircu & Ciumara, 2007; Pecican, 2003; Oriol & Popp, 2011; Brezeanu & Stănculescu, 2010). We consider performance to be a dependent variable, which depends on decisive variable budgets. We start from the hypothesis that budgets help to increase the entity's performance. In realizing this simple linear regression model we assume that, as the importance and the use of budgets in economic entities grow, performances are higher. We want to estimate how performance changes with the increasing importance given to budgets. The hypothesis is based on the results of the questionnaire distributed to Romanian economic entities and their interpretation. The econometric model can be presented as follows:

Result = f (Budgets)

$$\text{Result} = \beta_1 + \beta_2 * \text{Budgets} + e_t \quad (1)$$

The dependent variable, the result, is a linear function of the importance given to budgets, called explanatory variable. The model has two parameters:

- $\beta_1$  - called intercept, which measures the size of the dependent variable, result, if the explanatory variable is zero.
- $\beta_2$  - measures the average change of the result when the variable budget increases by one unit.
- $e_t$  - is the random component of the model, the error that arises from the existence of influential factors that were not included in the model or due to the limited analyzed sample.

As a first step we have to quantify the two variables. To achieve this, we asked respondent entities to answer two questions. First, in order to quantify the economic entities budgets we asked respondents to give a value from 1 to 5 according to the importance given to these tools. The notes have the following meanings:

- Budgets are not developed, being considered unnecessary
- Budgets are developed, but are not considered important
- Budgets are of average importance, being useful in some circumstances
- Budgets are important for the entity
- Budgets are of particular importance for the entity

The answers obtained were as we expected. 63.64% of surveyed entities believe that budgets are very important, 18.18% think they are important, 9.09% think they are of average importance, being useful in certain circumstances, and 9.09% of those questioned develop budgets, but they don't consider them to be important. We note that all entities that responded develop budgets. The results are presented in Fig. 3.

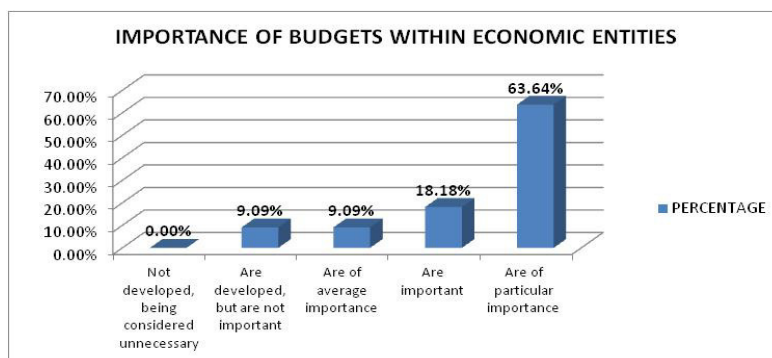


Fig. 3. The importance of budgets in the economic entities

The second question concerns the way in which performance is measured. 90.91% of the surveyed entities measure performance through the result of the year, 63.64% by turnover, 45.45% used non-value indicators for measuring performance (as customer satisfaction), and 27.27% take into account rates of return and Return on Equity. 9.09% of the responded entities analyze the performance by the increase in share prices on the stock exchange (see Fig. 4). We note that entities use more than one way to quantify performance.

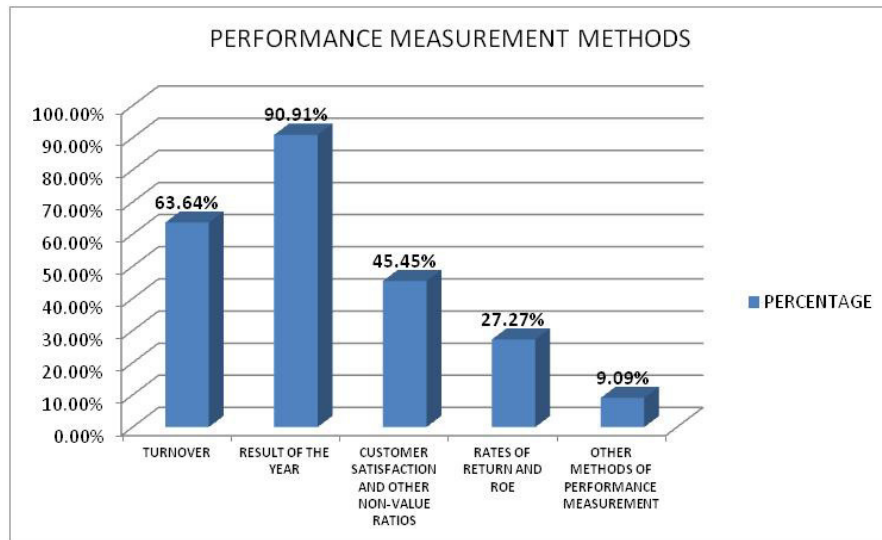


Fig. 4. The importance of budgets in the economic entities

Following the responses obtained, we considered appropriate to use as a measure of performance the net result for the year. Given the unavailability of data for this indicator for the year 2012 when drafting this paper, we took into account the outcome of the year 2011 ([www.bvb.ro](http://www.bvb.ro)). In order to have the same measuring scale for both variables, we developed a scale of values which allowed us to rate performance based on the results achieved (see Table 1).

Table 1. The quantification of the performance obtained

Grade	Performance level
1	$\leq 0$ RON
2	0-50,000 RON
3	50,000- 10,000,000 RON
4	10,000,000- 50,000,000 RON
5	$\geq 50,000,000$ RON

The values provided by respondents were used in developing the econometric model that reflects the way in which budgets influence performance. The next step of our study was the linear regression analysis and the interpretation of the results. The simple linear regression calculations were performed using the Excel function: Data Analysis, Regression. The sample used consists of 11 entities who answered the questionnaire distributed.

As we see from Table 2, the parameters have positive value, greater than zero. The coefficient  $b_1$ , called Intercept, indicates that the average performance of the entity when budgets are 0 is 0.45 points. The coefficient  $b_2$ , associated with the variable budgets, show that if the importance of budget increases by one unit, the result

increases by 0.54 points. Thus, we see that even if the entity may obtain performance independent of the use of budgets, they can help the entity to increase its outcome.

Table 2. Estimation of linear regression coefficients

	Coefficients
Intercept	0.448275862
Bugete	0.543103448

Then we calculate the dispersion of errors, the estimators' variance and standard error from the two parameters associated to variables. The values presented in Table 3 will be used to calculate the estimators' variance.

Table 3. Dispersion of errors

	Error sum of squares	Dispersion of errors
Residual	8.525862069	0.947318

Regarding estimators, as the variation is smaller, the estimation is more reliable and the error is smaller. Analyzing the values for these indicators presented in table 4, we see that the variation of the estimator  $b_2$  attached to Budget variable is relatively small, having a value of 0.09, which indicates that the value of the estimator  $b_2$  approaches the true value of the parameter  $\beta_2$ . The standard error will be used to determine the confidence intervals.

Table 4. Estimators' Variance and their standard error

	Standard error	Estimators variance
Intercept	1.340387109	1.80
Bugete	0.299719669	0.09

We also analyzed the confidence interval for the parameters model, shown in Table 5. In developing the econometric model we considered the significance value  $\alpha = 5\%$  as permitted level of errors. Thus, we found that, with a probability of 95%,  $b_1$  lies in the interval  $[-2.58, 3.48]$  and  $b_2$  in the interval  $[-0.13, 1.22]$ .

Table 5. Confidence intervals for the parameters model

	Lower 95.0%	Upper 95.0%
Intercept	-2.58389	3.480442
Bugete	-0.13491	1.221116

To validate the model and to formulate conclusions upon the general community based on the sample analyzed, it is necessary to test the significance of model parameters. Testing the significance of parameter  $b_2$  attached to the variable Budgets will allow us to determine whether budgets have an impact on the results of the economic entity. In performing this test we start from the hypothesis that that  $\beta_2 = 0$ , in other words the assumption that budgets are not important in achieving or obtaining the results. Then we calculate the statistic of the t test shown in the output provided by Excel by running the regression and presented in Table 6. We also calculate critical t. If t lies in the interval  $(-t \text{ critical}, t \text{ critical})$ , then the null hypothesis of the insignificance of



budgets is not rejected. In our case we observe analyzing table 6, that  $t = 1.81 \leq t_{\text{critical}} = 2.69$ , so we don't reject the null hypothesis. This means that there is no statistically significant link between budgets and the results achieved by economic entities. This result is confirmed by analyzing the probability associated with the t test, denoted by p-value, also shown in Table. 6. Theory states that if p-value is greater than the significance  $\alpha$ , the null hypothesis is not rejected. In this case the p-value = 0.10 is higher than  $\alpha = 0.05$ . Thus, budgets parameter is statistically insignificant for entities performance measured by the outcome of the exercise.

Table 6. T test statistic and critical t,  $t_{\text{critical}} = 2.685010847$

	T Stat	P-value
Intercept	0.334438	0.745711
Bugete	1.812038	0.1034

We can see in Table 7, that only 3.11 of the total variation of the variable Result, measured by SST (total sum of squares) that has a value of 11.63 is explained by the regression model (regression sum of squares - SSR); the remaining 8.53 are explained by the variation of the deviation (error sum of squares SSE). Thus, we can't say that the model is validated, as the explained variation has a much lower share than the unexplained one.

Table 7. Total variation analysis

	Notation	SS
Regression	SSR	3.110501567
Residual	SSE	8.525862069
Total	SST	11.63636364

If we calculate the coefficient of determination (R Square), we find that only 27% of outcome variance is explained by the regression model, meaning by the use and importance given to budgets. Correlation coefficient Multiple R, which measures the intensity of the relationship between budgets and performance measured by the outcome, has a value of 0.51 (see Table 8).

Table 8. The coefficient of determination and correlation

Regression Statistics	
Multiple R	0.517019079
R Square	0.267308728

The last test that we can analyze to check simultaneously all model parameters is the F test. If the statistic F is greater than critical F, the null hypothesis of insignificance is rejected. In the case analyzed  $F = 3.28 < 5.11$  critical F. The analyzed model is therefore not validated, the impact of determinant factor, budget, being insignificant in terms of outcome variance.

## Conclusions

From a theoretical perspective, as well as from analyzing the responses from the Romanian economic entities, we can say that budgets are management tools whose use contributes to the improvement of



performance. But statistically speaking, the link between budgets and performance has not been validated through the economic model developed. Performance variation can be explained mostly by changes in other determinants such as income and expenses of the entity, when is measured by profit. However, we believe that the use of budgets, although their not condition the obtaining of performance, can help to its improvement. Budgets can explain 27% of the variation in performance. So the budgeting activity influences performance, although not to a significant extent. However, in economic entities, where performance is a way of survival and a key objective, any instrument, method or means which contributes to performance improvement should be taken into account. And budgets help entities in achieving their objectives, are useful in resources and business management, for leadership and employee motivation, may increase individual performance and they allow the implementation of an effective control, which helps the management to take decisions and relevant measures for activity improvement. Therefore, we believe budgets are useful tools in the activity of economic entities that contribute to superior performance.

## References

- Albu, N.; Albu, C., Instrument for management performance - Volum II- Management Control, Economic Publishing House, Bucharest, 2003, ISBN 973-590-895-6 / 973-590-897-2
- Albu, N.; Albu, C., Practical solutions to streamline operations and increase organizational performance- sustainable development management through balanced score card, CECCAR Publishing House, Bucharest, 2005, ISBN 973-8478-55-3
- Bălașa, D., Evaluation of organization performance, *Economic Tribune*, No.12/2010, p.22-27, ISSN 1018-0451
- Brezeanu, P.; Stănculescu, A., Financial structure and corporate performance, *Economic Tribune*, No.12/2010, p.65-70, ISSN 1018-0451
- Brooks, S., How to understand accounting, *RAO Encyclopedia*, 2002, ISBN 973-8175-46-1
- Chong, V. K.; Eggleton, I. R. C.; Leong, M. K. C., The multiple roles of participative budgeting on job performance, *Advances in Accounting*, Vol. 22, 2006, p. 67-95, available at <http://www.sciencedirect.com>, accessed on 01.02.2013
- Feleagă, L.; Feleagă, N., Financial Accounting a European and international approach, Volume II, Infomega Publishing House, 2005, ISBN 973-7853-075
- Folan, P.; Browne, J.; Jagdev H., Performance: Its meaning and content for today's business research, *Computers in Industry*, Volume 58, Issue 7, September 2007, Pages 605-620, available at [www.sciencedirect.com](http://www.sciencedirect.com), accessed on 23.04.2013
- Gruman, J. A.; Saks, A. M., Performance management and employee engagement, *Human Resource Management Review*, Volume 21, Issue 2, June 2011, Pages 123-136, available at [www.sciencedirect.com](http://www.sciencedirect.com), accessed on 23.04.2013
- Hansen, S.C.; Van der Stede, W. A., Multiple facets of budgeting: an exploratory analysis, *Management Accounting Research*, Volume 15, Issue 4, December 2004, pp. 415-439, available at <http://www.sciencedirect.com>, accessed on 01.02.2013
- Lau, C. M., Nonfinancial and financial performance measures: How do they affect employee role clarity and performance?, *Advances in Accounting*, Volume 27, Issue 2, December 2011, Pages 286-293, available at [www.sciencedirect.com](http://www.sciencedirect.com), accessed on 23.04.2013
- Lau, C. M.; Martin-Sardesai, A. V., The role of organizational concern for workplace fairness in the choice of a performance measurement system, *The British Accounting Review*, Volume 44, Issue 3, September 2012, Pages 157-172, available at [www.sciencedirect.com](http://www.sciencedirect.com), accessed on 23.04.2013
- Lau, C.M.; Tan, J.J., The impact of budget emphasis, participation and task difficult on managerial performance: a cross-cultural study of the financial services sector, *Management Accounting Research*, Vol 9, Issue 2, June 1998, p.163-183, available at <http://www.sciencedirect.com>, accessed on 19.02.2013
- Nouri, H.; Parker, R.J., The relationship between budget participation and job performance: The roles of budget adequacy and job organizational commitment, *Accounting Organization and Society*, Vol 23, Issue 58, July-August 1998, p. 467-483, available at <http://www.sciencedirect.com>, accessed on 19.02.2013
- Oriol, I.; Popp, C.; Econometrics, Eftimie Murgu Publishing House, Reșița, 2011, ISBN 9789731906966
- Parker, R.J.; Kyj, L., Vertical information sharing in the budgeting process, *Accounting, Organizations and Society*, Volume 31, Issue 1, January 2006, Pages 27-45, available at <http://www.sciencedirect.com>, accessed on 09.04.2013
- Păunescu, C.; Continuous improvement: performance indicators, *Quality and management*, No.1/2006, ISSN 1582-8794, p. 17-20
- Pecican, A.; Econometrics for...economists. *Econometrics- Theory and Applications*, Economic Publishing House, Bucharest, 2003, ISBN 9735908085
- Popescu, D.; E-management - resource planning and business financial performance, *Finance, banking and insurance*, No.4/2006, ISSN 1453-7524, p.27-30
- Spircu, L.; Ciumara, R.; Econometrics, Pro Universitaria Publishing House, Bucharest, 2007, ISBN 9789731291499
- Tabără, N.; Horomnea, E.; Marcel, F.; Dicu, N.R.; Considerations on the overall performance of the business, *Accounting, expertise and audit of business*, No.8, August 2007, p 46-53, ISSN 1454-9263

- Tabără, N.; Horomnea, E.; Marcel, F.; Dicu, N.R.; Firm performance in the context of international regulations Part I, Accounting, expertise and audit of business, no.5/2008, p. 25-28, ISSN 1454-9263
- Tabără, N.; Prahoveanu, A.; Dicu, R.; Chiru, S.; Quality control and business performance, Journal of Public Finance and Accountancy, No.1/2007, p.60-62, ISSN 1582-9774
- Verbeeten, F. H.M.; Boons, A. N.A.M., Strategic priorities, performance measures and performance: an empirical analysis in Dutch firms, European Management Journal, Volume 27, Issue 2, April 2009, Pages 113-128, available at [www.sciencedirect.com](http://www.sciencedirect.com), accessed on 23.04.2013
- Verboncu, I.; The concept of performance, Economic Tribune, No.26/2005, ISSN 1018-0451, p.21-23  
[www.bvb.ro](http://www.bvb.ro) accessed on 05.02.2013
- Yıldız, S.; Karakaş, A., Defining Methods and Criteria for Measuring Business Performance: A Comparative Research Between the Literature in Turkey and Foreign,  
 Procedia - Social and Behavioral Sciences, Volume 58, 12 October 2012, Pages 1091-1102, available at [www.sciencedirect.com](http://www.sciencedirect.com), accessed on 23.04.2013